Installation and Operating Instructions for Differential Pressure Sensor Water Tank Level Long Range Telemetry System.

This system uses 900MHz spread spectrum transceiver modules

The modules use frequency-hopping technology designed to minimize interference. Range is 1 km urban and up to 15 km rural.

Tank Level Pressure Sensor and RF Transmitter Installation.

- **Lower the pressure sensor and cable through an appropriate hole or opening above the water level in the tank and ensure that the sensor is sitting on the bottom of the tank. Excess cable can be pushed into the tank.**
- **Plug the 4-pin connector on the cable from the pressure sensor into the corresponding socket on the base of the transmitter unit.**
- **Plug in the solar panel power supply to the 2-pin socket on the base of the transmitter.**
- **Connect the 6V sealed lead acid backup battery inside the weatherproof transmitter enclosure by pushing together the matched pair of plugs that connect the battery to the controller board (see Figure 1).**
- **The red LED on the circuit board containing the wireless transmitter inside the unit will light up and flicker when each reading is being transmitted. Normally one reading is sent approximately every 10 seconds for the first 3 hrs then one reading every 30 seconds thereafter.**
- **The transmitter antenna with magnetic base should be mounted as high as possible.**

RF Receiver and Aquagauge Display Unit Installation.

- **Mount the receiver antenna as high as possible and as close to line-of-sight to the transmitter as practicable.**
- **Connect the cable from the display unit to the receiver.**
- **The receiver and display unit have a single power supply. Plug in the 240V AC to 9V DC power adapter to the display unit and turn the power on. The display unit will switch on automatically and the display light will be on continuously.**
- **Press the "DISPLAY" key to switch between sensor readings.**
- **The display will initially show "0" and if no RF signal is being received from any sensor then "Nil" will be displayed after about 4 minutes.**
- **The display will retain a reading for about 4 minutes if no new data is received. The unit must therefore be periodically switched on and off when testing reception range.**
- **The display unit has a blue LED alarm that will flash if any tank level reading is non-zero and below a preset value of 75 cm**

Data Logging and Charting Software Option.

If the system has been purchased with the optional serial data collection package (for WINDOWS 95 or latter WINDOWS operating system) then the AQUACHART software supplied on CD will need to be installed. Insert the CD and run the setup program and follow the instructions. Once installed, connect the supplied serial cable to the socket on the AQUAGAUGE display unit and an available serial port on the PC. Check that the chosen serial port is not allocated to other software running on the PC. Start the AQUACHART software and select appropriate data collection parameters as follows:

Serial Port: select the COM port to which the serial cable is connected. ***Make sure that no other software is using the com port that you connect to.***

Data Storage Buffer Size: default size is 51200. This value will determine the number of data points available for display in the main text box. If the data buffer size is exceeded it will automatically be saved and appended to a file named Aquachart_overflow_data.txt
Time Interval Between Readings: Choose an appropriate interval for data collection
Initial x-axis Span: Determines the initial time span for the data plots.

The START button commences data collection
The STOP button stops data collection
The CLEAR button erases all data
The PRINT button prints the graphs
The SAVE button will save the data displayed in the text box in a text file of choice

Drag handles are provided on the charts for data rescaling and a cursor can be used to determine x,y values at any position on both charts.

Note:

The 4W solar panel will require at least an average of 2.5 hr full sunlight per day over any 4 day period to keep the internal lead acid battery fully charged. If the system is intermittently shutting down due to lack of electrical power then a higher wattage solar panel should be used.

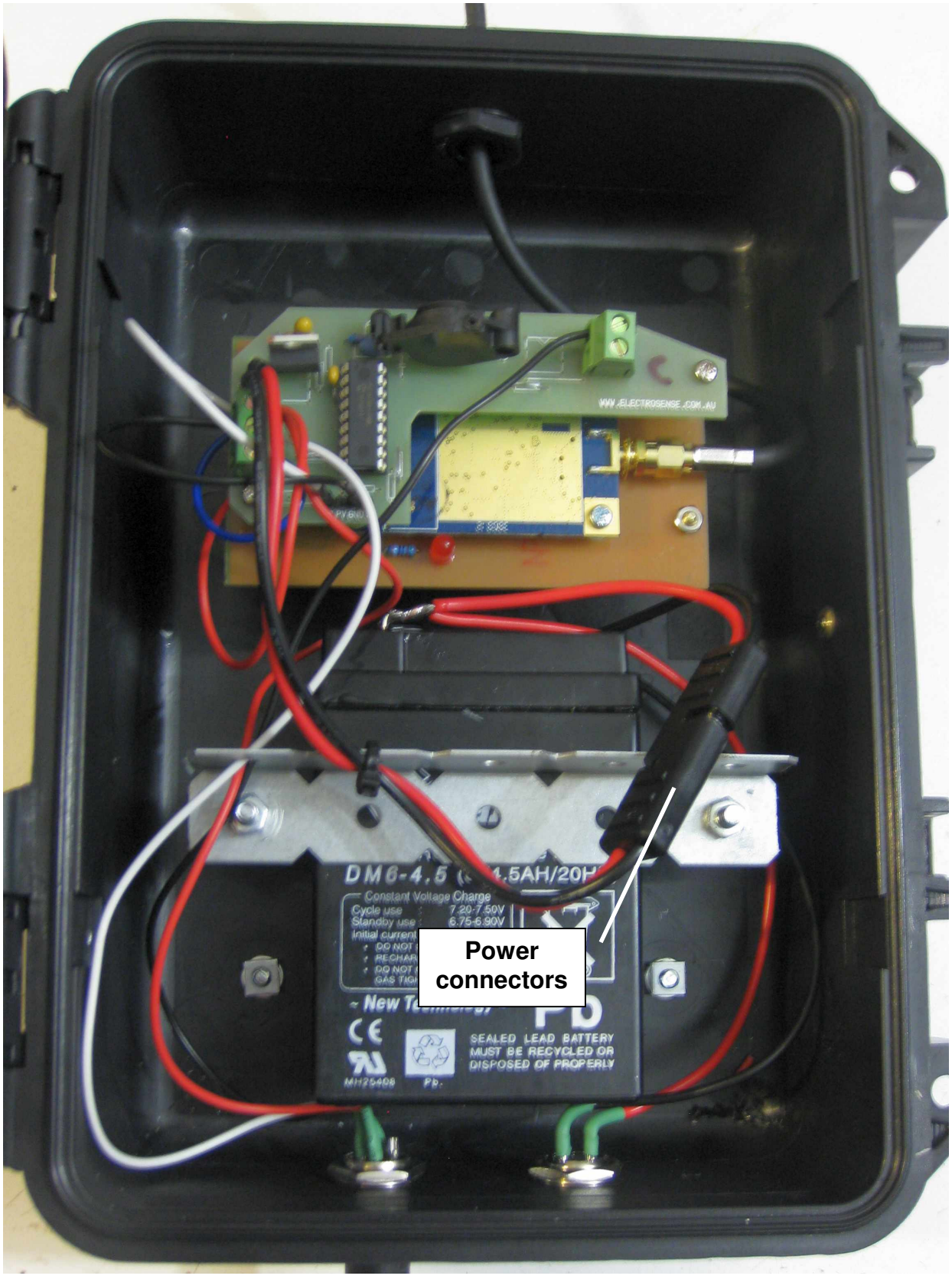

Figure 1. Transmitter unit

Figure 2. Receiver/ display.

SYSTEM INSTALLATION DIAGRAM